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EXAMINER	
RILEY, MARCUS T	

ART UNIT	PAPER NUMBER
2625	

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05/01/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/970,702	TAKEI ET AL.	
	Examiner	Art Unit	
	MARCUS T. RILEY	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/02/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/25/2002*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 02, 2008 has been entered.

Response to Amendment

2. This office action is responsive to the applicant's remarks received on April 02, 2008. Claims 1-21 remain pending, and newly added claims 22-26 are pending.

Response to Arguments

3. Applicant's arguments with respect to amended claims 1-7 and 9 newly added claims 22-26, filed on April 02, 2008 have been fully considered but they are not persuasive.

A: Applicant's Remarks

Claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, and 16-21 are rejected under 35 U.S.C. § 103, on the basis of the Farrell and Trovinger (US 6,873,426 and US 6,708,967, respectively). Claims 3, 6, 9, 12 and 15 were rejected on the basis of Farrell and Trovinger, in View of Jeyachandran (US 6,567,176). Applicants respectfully traverse these rejections for at least the reason that the

Farrell patent does not disclose the claimed subject matter that is attributed to it in the Office Action.

Claim 1 recites, among other elements, a printing system having an on-line client, print server and printer, and an off-line finishing device. The claim recites that the print server includes a first memory for storing specifications of the on-line printer and of the off-line finishing device, as well as information regarding options installed thereon. Claim 1 further includes a creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the off-line finishing device. Because of the memory, the print server is able to create a finishing device job ticket that includes only functions that can be performed by the off-line finishing device. This avoids creating a ticket having functions that cannot be performed by the off-line finishing device.

At the bottom of page 11 of the Official Action, it is stated that Farrell discloses a printing system that includes a print server that has a memory for storing specifications of the off-line finishing device as well as information regarding options installed thereon. However, no such teaching can be found in Farrell of a memory that stores specifications of an off-line finishing device to which a finishing device job ticket is directed. Accordingly, as set forth above, the Farrell device is not able to create a finishing device job ticket that includes only functions that can be performed by the off-line finishing device.

This deficiency is not overcome by the remaining references. Accordingly, claim 1 is patentable over the applied prior art.

The remaining claims 2-16 are also patentable at least for the same or similar reasons.

To further define the protection to which applicants are entitled, new claims 22 - 26 have been added. New independent claim 22 recites a printing system that includes an on-line client; a print server; an on-line printer having at least one first finishing feature; and a finishing device having at least one second finishing feature. The print server includes a first memory for storing specifications of the on-line printer and of the finishing device, as well as information regarding the first and second finishing features; a receiver for receiving from the client data pertaining to a job ticket that includes at least finishing specifics to be executed; a sorter for, based on the information regarding the specifications and the first and second finishing features that is stored in the first memory, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the finishing device; a setting unit for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer; and a creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the finishing device.

Because of the memory, the print server is able to create a finishing device job ticket that includes only functions that can be performed by the finishing device. This avoids creating a ticket having functions that cannot be performed by the finishing device.

At the bottom of page 11 of the Official Action, it is stated that Farrell discloses a printing system that includes a print server that has a memory for storing specifications of the finishing device as well as information regarding options installed thereon. However, no such teaching can be found in Farrell of a memory that stores specifications of a finishing device to which a finishing device job ticket is directed. Accordingly, as set forth above, the Farrell device

is not able to create a finishing device job ticketthat includes only functions that can be performed by the finishing device.

This deficiency is not overcome by the remaining references. Accordingly, claim 22 is patentable over the applied prior art. Claims 23 - 25 are also patentable at least for the same or similar reasons.

New claim 26 recites a printing system comprising an on-line client; a print server; an on-line printer having at least one first finishing feature; and a finishing device having at least one second finishing feature. The print server includes a receiver for receiving from the client data pertaining to a job ticket that includes at least finishing specifics to be executed; a sorter for, based on the information regarding the first and second finishing features, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the finishing device; a setting unit for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer; and a creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the finishing device.

Thus, the print server is able to create a finishing device job ticket that includes only functions that can be performed by the finishing device. This avoids creating a ticket having functions that cannot be performed by the finishing device. The Farrell device is not able to create a finishing device job ticket that includes only functions that can be performed by the finishing device.

This deficiency is not overcome by the remaining references. Accordingly, claim 26 is also patentable over the applied prior art.

Applicants respectfully request reconsideration and withdrawal of the rejections, and allowance of all pending claims.

Examiner's Response

Claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, and 16-26 are rejected under 35 U.S.C. §103, on the basis of the Farrell '426 (US 6,873,426) and Trovinger '967 (US 6,708,967). Claims 3, 6, 9, 12 and 15 are rejected on the basis of Farrell '426 and Trovinger '967, in view of Jeyachandran '176 (US 6,567,176). Farrell '426 in combination with Trovinger '967, in view of Jeyachandran '176 either alone or in combination teach, disclose or suggest the claimed subject matter.

Farrell '426 discloses printing system that includes a print server that has a memory for storing specifications of a finishing device as well as information regarding options installed thereon. (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 9-22).

Trovinger '967, discloses an offline finishing device as well as information regarding options installed thereon and a memory that stores specifications of an off-line finishing device to which a finishing device job ticket is directed ("*The job ticket can originate from any source including the printer that printed the sheets.*" column 7, lines 45-55). Furthermore, see ("*The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network.*" column 18, lines 29-37); and see ("*The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,*" column 18, lines 48-51).

Accordingly, as set forth above, Farrell '426 in combination with Trovinger '967 is able to create a finishing device job ticket that includes only functions that can be performed by the off-line finishing device. Thus, claim 1 is not patentable over the applied prior art.

The remaining claims 2-16 are not patentable at least for the same or similar reasons.

Newly added claims 22-26 have been added and are rejected by Farrell '426 in combination with Trovinger '967, either alone or in combination because they teach, disclose or suggest the claimed subject matter. See 35 U.S.C. §103 rejections below.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell (US 6,873,426 B1 hereinafter, Farrell '426) in combination with Trovinger et al. (US 6,708,967 B1 hereinafter, Trovinger '967).

Regarding claim 1; Farrell '426 discloses a printing system comprising an on-line client, print server and printer, as well as an off-line finishing device, wherein the print server includes: first memory means for storing specifications of the on-line printer and of the off-line, finishing device as well as information regarding options installed thereon (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system*

controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54." column 5, lines 11-22); a receiver for receiving from the client data pertaining to a job ticket that includes at least finishing specifics for printing to be executed (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions*

for the particular print job." column 3, lines 55-67 thru column 4, lines 1-8); a sorter for, based on the information regarding the specifications and installed options that is stored in the first memory, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the off-line finishing device (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions."* column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as*

illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8). Furthermore see (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 9-22); a setting unit for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the*

alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54." column 5, lines 16-22); a creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the off-line finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The*

sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354." Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output*

power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network." column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 1.

Regarding claim 2; Farrell '426 discloses a printing system where the print server further includes a transmitter for transmitting to the on-line printer the data pertaining to the

finishing device job ticket created by the creating unit so as to print the finishing device job ticket (*"Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 30-38).

Regarding claim 4; Farrell '426 discloses a print server to be used in a printing system including an on-line client, print server and printer, as well as an off-line finishing device, the print server comprising: first memory for storing specifications of the on-line printer and of the off-line finishing device as well as information regarding options installed thereon (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 11-22); a receiver for receiving from the client data pertaining to a job ticket that a sorter for, based on the

information regarding the specifications and installed options that is stored in the first memory, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the off-line finishing device (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job."* column 3, lines 55-67 thru column 4, lines 1-8) See also (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the*

desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions." column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until*

user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8); a setter for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22); and creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the off-line finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354."* Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These*

can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets." column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network."* column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention*

resides in the easy transition from on-line to off-line finishing." Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 4.

Regarding claim 5; Farrell '426 discloses a print server as claimed in claim 4, further comprising transmitter for transmitting to the on-line printer the data pertaining to the finishing device job ticket created by the creating unit so as to print the finishing device job ticket (*"Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 30-38).

Regarding claim 7; Farrell '426 discloses a computer-readable medium containing a computer program to be used in a printing system which includes an on-line client and printer as well as an off-line finishing device, and which executes a print job based on a job ticket including at least finishing specifics for printing to be executed, the computer program causing a computer to execute processing comprising the steps of: receiving the job ticket from the client (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences*

such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-8); separating the finishing specifics included in the received job ticket into those to be performed by the on-line printer and those to be performed by the off-line finishing device, based on information regarding specifications and installed options of the on-line printer and finishing device that is stored in a first memory (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions."* column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with*

reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8); setting, in the on-line printer, the parameters for the finishing specifics as separated and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing*

instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54." column 5, lines 16-22); and creating data for a finishing device job ticket that includes the finishing specifics separated and assigned to the off-line finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the*

width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354." Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators*

including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network." column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 7.

Regarding claim 8; Farrell '426 discloses a computer-readable medium containing a computer program as claimed in claim 7, the processing further comprising a step of transmitting to the on-line printer the created data pertaining to the finishing device job ticket so as to print

the finishing device job ticket (*"Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 30-38).

Regarding claim 10; A printing system comprising an on-line client, print server and printer, and an off-line finishing device, wherein the print server includes: a memory for storing specifications of the on-line printer and the off-line finishing device (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 11-22); and a processor that separates finishing specifics included in a received job ticket the on-line printer with the parameters for the separated finishing specifics to be performed by the on-line printer, and generates a job ticket that includes the separated finishing specifics to be performed by the

off-line finishing device (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions."* column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For*

example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967 discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output*

trays 354." Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network."* column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967 are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 10.

Regarding claim 11; Farrell '426 discloses a printing system as claimed in claim 10, wherein the print server further transmits to the on-line printer the data pertaining to the job ticket generated by the processor to print the finishing device job ticket (*"Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 30-38).

Regarding claim 13; Farrell '426 discloses a print server to be used in a printing system including an on-line client, print server and printer, and an off-line finishing device, the print server comprising: a memory for storing specifications of the on-line printer and the off-line finishing device (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 11-22); a processor that separates finishing specifics included in a received job ticket into those to be performed by the on-line printer and those to be performed by the off-line finishing device, based on the specifications stored in said memory, provides the on-line printer with the parameters for the separated finishing specifics to be performed by the on-line printer, and generates a job ticket that includes the separated finishing specifics to be performed by the off-line finishing device (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored*

plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions." column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that*

providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354."* Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached*

printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers." column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network."* column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 13.

Regarding claim 14; Farrell '426 discloses a print server as claimed in claim 13, wherein the print server further transmits to the on-line printer the data pertaining to the job ticket generated by the processor to print the finishing device job ticket (*"Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 30-38).

Regarding claim 16; Farrell '426 discloses a print server to be used in a printing system including a client, the print server, a printer on which at least one finishing option is installed, and a finishing device that is separately provided from the printer, comprising: a first memory section that stores information on the specifications of the printer, the finisher, and the at least one finishing option installed on the printer (*"Yet another advantage of the present invention*

resides in the easy transition from on-line to off-line finishing." column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 11-22); a receiving section that receives from the client data pertaining to a job ticket that includes at least finishing specifics for printing to be executed (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input*

device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-8); and a control section that separates, based on the information on the specifications of the printer, the finishing device, and the at least one finishing option installed on the printer that is stored in the first memory section, the finishing specifics included in the job ticket received by the receiving section into a first group of finishing specifics to be performed by the at least one finishing option installed on the printer and a second group of finishing specifics to be performed by the finishing device separately provided from the printer (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions."* column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with*

the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The*

sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354." Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output*

power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network." column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967 are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 13.

Regarding claim 17; Farrell '426 discloses a transmitting section that transmits information on the first group of specifics to the printer (*"Additionally, the markers can be*

configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like." column 5, lines 30-38).

Regarding claim 18; Farrell '426 discloses where the information on second group of the specifics is also sent to the printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22);

Regarding claim 19; Farrell '426 discloses where the information on the second group of specifics is sent to the printer in a form of data to be printed by the printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22);

Regarding claim 20; Farrell '426 discloses where the form of data complies with a page description language (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing*

instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54." column 5, lines 16-22);

Regarding claim 21; Farrell '426 discloses where the finishing device is an off-line finishing device that is disconnected from the client, the print server, and the printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22). See also (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17).

Regarding claim 22; Farrell '426 discloses a printing system comprising: an on-line client; a print server; an on-line printer having at least one first finishing feature; and a finishing device having at least one second finishing feature; wherein the print server includes: a first memory for storing specifications of the on-line printer and of the finishing device, as well as information regarding the first and second finishing features (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction*

for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54." column 5, lines 11-22); a receiver for receiving from the client data pertaining to a job ticket that includes at least finishing specifics to be executed (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job."* column 3, lines 55-67 thru column 4, lines 1-8); a sorter for, based on the information regarding the specifications and the first and second finishing features that is stored in the first memory, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the finishing device (*"However, system controller 24, upon a determination that the desired finishing is unavailable,*

can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions." column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to*

be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8); a setting unit for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22); and a creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to*

the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like." column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354."* Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or*

photocopyers." column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network."* column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967 are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 22.

Regarding claim 23; Farrell '426 discloses a printing system as claimed in claim 22, wherein the print server further includes a transmitter for transmitting to the on-line printer the data pertaining to the finishing device job ticket created by the creating unit so as to print the finishing device job ticket (*"Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 30-38).

Regarding claim 24; Farrell '426 discloses a print server to be used in a printing system including an on-line client; a print server; an on-line printer having at least one first finishing

feature and a finishing device having at least one second finishing feature; the print server comprising: a first memory for storing specifications of the on-line printer and of the finishing device as well as information regarding the first and second finishing features (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 11-22); a receiver for receiving from the client data pertaining to a job ticket that includes at least finishing specifics for printing to be executed (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal*

computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-8); a sorter for, based on the information regarding the specifications and installed options that is stored in the first memory, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the finishing device (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions."* column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing*

operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8); a setter for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22); and a creating unit for creating data for a finishing device job ticket that includes the finishing

specifics separated by the sorter and assigned to the finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967 discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is*

removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354." Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network."* column 18, lines 29-37); and see (*"The present invention has*

application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line," column 18, lines 48-51).

Farrell '426 and Trovinger '967 are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 24.

Regarding claim 25; Farrell '426 discloses a computer-readable medium containing a computer program to be used in a printing system which includes an on-line client; a print server; an on-line printer having at least one first finishing feature; and a finishing device having at least one second finishing feature, the computer program causing a computer to execute processing comprising the steps of: (*"Referring now to FIG. 2, the controller section 14 is illustrated by*

functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-8); (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* column 3, lines 16-17). See also (*"In the event substitute finishing is selected from decision block 48, the system controller 24 will retrieve alternate finishing instructions which are compatible with the finishing installed element 18, as illustrated in step 50. The alternate finishing instructions can reside, for example, in the finishing element 18 itself, within a memory in the system 10, or in a networked or otherwise accessible (to controller 24) source. Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing*

equipment 18 on the print system, as illustrated in step 54." column 5, lines 11-22); receiving the job ticket from the client; separating the finishing specifics included in the received job ticket into those to be performed by the on-line printer and those to be performed by the finishing device, based on information regarding specifications and installed options of the on-line printer and the first and second finishing features that is stored in a first memory (*""* column , lines); (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job."* column 3, lines 55-67 thru column 4, lines 1-8); setting, in the on-line printer, the parameters for the finishing specifics as separated and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be*

completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54." column 5, lines 16-22); and creating data for a finishing device job ticket that includes the finishing specifics separated and assigned to the finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967 discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the*

width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354." Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators*

including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network." column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967 are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 25.

Regarding claim 26; Farrell '426 discloses a printing system comprising: an on-line client; a print server; an on-line printer having at least one first finishing feature; and a finishing

device having at least one second finishing feature; wherein the print server includes: a receiver for receiving from the client data pertaining to a job ticket that includes at least finishing specifics to be executed (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job."* column 3, lines 55-67 thru column 4, lines 1-8); a sorter for, based on the information regarding the first and second finishing features, separating the finishing specifics included in the job ticket received by the receiver into those to be performed by the on-line printer and those to be performed by the finishing device (*"However, system controller 24, upon a determination that the desired finishing is unavailable, can substitute alternate finishing instructions which are compatible with available finishing equipment (substitute literal finishing). Additionally, system controller 24 can also employ slipsheets, folders, colored plastics, or annotations in the margins*

of oversized sheets, and the like (substitute abstract finishing). Regardless of the substitute abstract finishing used, supplying a representation of the desired finishing instructions, either through code or human-readable text, make later off equipment or off site finishing more likely to agree with the originally intended finishing instructions." column 4, lines 13-24). See also (*"Referring now to FIG. 3, exemplary steps of a finish process suitable to practice the present invention are shown. As discussed above with reference to FIG. 2, the system controller 24 receives a print job from the input device 12, illustrated in block 40. A threshold question can then be answered whether to apply literal or abstract finishing to the print job illustrated by decision block 42. In other words, the present invention envisions a user selecting between either abstract or literal finishing operations at the job onset or during run-time. That is, the job may be prepared with the finishing capabilities existing on the print machine, or with detailed abstract finishing denoting the finishing operation to be later performed. Assuming the job request indicates a preference for literal finishing, for example stapling, the system controller 24 then determines whether the attached finishing element 18 can perform the desired finishing operation, as illustrated by decision block 44. If, to continue the example, stapling is not an option supported by finishing element 18, system controller 24 may then obtain a user preference regarding substitution of the desired finish with an available, literal finish or substituting an abstract finishing operation, as illustrated by block 46. This user preference can take several forms. For example, user preference can be determined from stored or default instructions allowing abstract finishing to be substituted in all cases, or other instructions allowing abstract finishing only when specific literal finishes are unavailable or by querying the user via the user interface. Those skilled in the art will appreciate that providing such a decision to an operator in*

run time will not significantly inconvenience the operator or slow follow-on print jobs, especially as compared with stopping the print job until user intervention or reprogramming can be accomplished." column 4, lines 13-24 thru column 5, lines 1-8); a setting unit for setting, in the on-line printer, the parameters for the finishing specifics as separated by the sorter and assigned to the on-line printer (*"Once the alternate finishing instruction is retrieved, the system controller 24 can substitute the alternate finishing instruction for the entire finishing instruction, as illustrated in step 52. In this case, the print job can be completed with the alternate finishing instruction, executed by the compatible finishing equipment 18 on the print system, as illustrated in step 54."* column 5, lines 16-22); and a creating unit for creating data for a finishing device job ticket that includes the finishing specifics separated by the sorter and assigned to the finishing device (*"Referring back to decision block 42, in the event that abstract finishing is selected, a processor such as system controller 24 will generate a marker indicative of the desired finishing to be later applied, as illustrated in step 58. The marker generated may take various forms, such as colored plastic slipsheets inserted at compilation boundaries within the print job, or slipsheets inserted as placeholders at locations requiring a later insert. Additionally, the markers can be configured as machine-readable and/or human readable descriptions of the desired finishing printed on the edge of oversized output media or on pages containing job content, for example, by watermark, glyph, barcode and the like. Once these markers have been generated, they are placed relative to the print job, such as at compilation boundaries, at insert places, as a single finish sheet for an entire job, and the like."* column 5, lines 23-38).

Farrell '426 does not expressly disclose a printing system further comprising an off- line finishing device.

Trovinger '967 discloses a finishing device may be offline, receiving both papers and a job ticket from another device ("*FIGS. 6 and 7 provide the best overview of the saddle stitched booklet maker. With an automatic sheet feeder 100, the machine shown represents an off-line booklet maker. An in-line version would take printed sheets from the output paper path of a printer. A stack 103 of duplex printed sheets is placed in an automatic sheet feeder 100. The sheet feeder loads the sheets, sheet-by-sheet, into a paper drive assembly 140 that measures the width of each sheet. A cutter assembly 175 trims each sheet to a pre-determined width according to an algorithm. The paper drive assembly 140 next positions each sheet in a fold mechanism 210 that folds the sheets, sheet-by-sheet, along the center line of each sheet. The folded sheet is removed from the fold mechanism 210 by a booklet collection assembly 250 that stacks the sheets in registration on a inverted V-shaped workpiece 259. The stack of sheets is thereafter stapled with a stapler 310 and then ejected by an ejection finger assembly 256 into a booklet unloader 330. The booklet unloader deposits the assembled saddle stitched booklets in the output trays 354."* Trovinger, column 3, lines 25-45). See also (*"The sheets are also evenly registered, one directly beneath the other, in the sheet feeder. The stack 103 can come either from various printers physically remote from the sheet feeder, operating off-line, or from a directly attached printer, in-line. The printers that produce suitable printed sheets are laser printers, inkjet printers, off-set printers, and could include other conventional or digital presses or photocopyers."* column 3, lines 55-63); and (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet*

maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets." column 7, lines 45-55). Furthermore, see (*"The controller is comprised of a digital processor, random-access memory, program storage memory, input signal conditioning for sensors and position encoders, output power control for DC motors, means of communicating with front panel switches and indicators including lights and a alphanumeric or graphical display. Optionally, the controller has means to communicate with a printer for implementation in an in-line configuration, with a host computer, or a network."* column 18, lines 29-37); and see (*"The present invention has application in homes, offices, small and large work-groups, and in commercial and retail printing operations. The apparatus can produce finished documents off-line,"* column 18, lines 48-51).

Farrell '426 and Trovinger '967 are combinable because they are from same field of endeavor of printer systems (*"The present invention generally relates to finishing printed sheets of paper and, more particularly, to finishing printed sheets of paper into saddle-stitched booklets."* Trovinger '967 at column 1, lines 6-8).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 by adding a printing system further comprising an off- line finishing device as taught by Trovinger '967.

The motivation for doing so would have been because it advantageous to provide an easy transition from on-line to off-line finishing (*"Yet another advantage of the present invention resides in the easy transition from on-line to off-line finishing."* Farrell '426 at column 3, lines 16-17).

Therefore, it would have been obvious to combine Farrell '426 with Trovinger '967to obtain the invention as specified in claim 26.

6. **Claim 3, 6, 9, 12 & 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Farrell '426 in combination with Trovinger '967 as applied to claim 1 above, and further in view of Jeyachandran et al. (US 6,567,176 B1 hereinafter, Jeyachandran '176).

Regarding claim 3; Farrell '426 discloses a printing system as claimed in claim 2, further comprising an on-line scanner, and wherein the print server further includes: second memory means for storing job information and user information included in the job ticket received by the receiving means (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will*

appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-7, See also Fig. 2); reading means for reading the job information from the data obtained by reading via the scanner the finishing device job ticket printed by the on-line printer (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55).

Farrell '426 and Trovinger '967 does not expressly disclose notifying means for calling the user information stored in the second memory means based on the job information read by the reading means and notifying the client of job completion based on the user information.

Jeyachandran '176 discloses notifying means for calling the user information stored in the second memory means based on the job information read by the reading means and notifying the client of job completion based on the user information (*"Since, at step S157, the printer 104 can not execute the job, program control moves to step S160. Then, as at step S160 it is determined that the job for the output of information can be performed by the printer 103, at step*

S161 it is determined that the received information should be transmitted to the printer 103. At step S162 the printer 104 sends an instruction to the printer 103 to print the information that is to be received (route 3). At step S163 to notify the user that the instructed job. was performed by the printer 103 electronic mail for the user is transmitted to the PC 101 (route 4).” column 21, lines 7-15; See also (*“First, the process performed by the scanner 102 will be explained. At step S150 the scanner 102 scans a document and acquires a job, information concerning which is to be transmitted to the printer 104. At step S151 this job is entered in the job table, and at step S153 the job is extracted. At step S154, the scanner 102 scans additional data and determines that the data is a job to be transmitted. At step S155, the scanner 102 ascertains that it is operating normally and that no problem exists in the scanning and transmission of instructed information.”* column 20, lines 46-52).

Farrell ‘426 and Trovinger ‘967 are combinable with Jeyachandran ‘176 because they are from same field of endeavor of printer systems (*“It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor.”* Jeyachandran ‘176 at column 2, lines 38-42).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell ‘426 and Trovinger ‘967 by adding notifying means for calling the user information stored in the second memory means based on the job information read by the reading means and notifying the client of job completion based on the user information as taught by Jeyachandran ‘176.

The motivation for doing so would have been because it advantageous to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

Therefore, it would have been obvious to combine Farrell '426 and Trovinger '967 with Jeyachandran '176 to obtain the invention as specified in claim 1.

Regarding claim 6; Farrell '426 and Trovinger '967 discloses a where the printing system further includes an on-line scanner, and the print server further comprises: a second memory for storing job information and user information included in the job ticket received by the receiver; a reader for reading the job information from the data obtained by reading via the scanner the finishing device job ticket printed by the on-line printer (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data*

and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-7, See also Fig. 2).

Farrell '426 and Trovinger '967 does not expressly disclose a notifying unit for calling the user information stored in the second memory based on the job information read by the reader and notifying the client of job completion based on the user information.

Jeyachandran '176 discloses a notifying unit for calling the user information stored in the second memory based on the job information read by the reader and notifying the client of job completion based on the user information (*"Since, at step S157, the printer 104 can not execute the job, program control moves to step S160. Then, as at step S160 it is determined that the job for the output of information can be performed by the printer 103, at step S161 it is determined that the received information should be transmitted to the printer 103. At step S162 the printer 104 sends an instruction to the printer 103 to print the information that is to be received (route 3). At step S163 to notify the user that the instructed job. was performed by the printer 103 electronic mail for the user is transmitted to the PC 101 (route 4)."* column 21, lines 7-15; See also (*"First, the process performed by the scanner 102 will be explained. At step S150 the scanner 102 scans a document and acquires a job, information concerning which is to be transmitted to the printer 104. At step S151 this job is entered in the job table, and at step S153 the job is extracted. At step S154, the scanner 102 scans additional data and determines that the*

data is a job to be transmitted. At step S155, the scanner 102 ascertains that it is operating normally and that no problem exists in the scanning and transmission of instructed information." column 20, lines 46-52).

Farrell '426 and Trovinger '967 are combinable with Jeyachandran '176 because they are from same field of endeavor of printer systems (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 and Trovinger '967 by adding a notifying unit for calling the user information stored in the second memory based on the job information read by the reader and notifying the client of job completion based on the user information as taught by Jeyachandran '176.

The motivation for doing so would have been because it advantageous to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

Therefore, it would have been obvious to combine Farrell '426 and Trovinger '967 with Jeyachandran '176 to obtain the invention as specified in claim 4.

Regarding claim 9; Farrell '426 and Trovinger '967 discloses a computer-readable medium containing a computer program where the printing system further includes an on-line scanner, and the processing further comprising the steps of: storing job information and user information included in the received job ticket into a second memory (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job."* column 3, lines 55-67 thru column 4, lines 1-7, See also Fig. 2); reading the job information from the data obtained by reading the finishing device job ticket printed by the on-line printer (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet*

maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets." column 7, lines 45-55).

Farrell '426 and Trovinger '967 does not expressly disclose calling the user information stored in the second memory means based on the read job information and notifying the client of job completion based on the user information.

Jeyachandran '176 discloses a calling the user information stored in the second memory means based on the read job information and notifying the client of job completion based on the user information (*"Since, at step S157, the printer 104 can not execute the job, program control moves to step S160. Then, as at step S160 it is determined that the job for the output of information can be performed by the printer 103, at step S161 it is determined that the received information should be transmitted to the printer 103. At step S162 the printer 104 sends an instruction to the printer 103 to print the information that is to be received (route 3). At step S163 to notify the user that the instructed job was performed by the printer 103 electronic mail for the user is transmitted to the PC 101 (route 4)."* column 21, lines 7-15; See also (*"First, the process performed by the scanner 102 will be explained. At step S150 the scanner 102 scans a document and acquires a job, information concerning which is to be transmitted to the printer 104. At step S151 this job is entered in the job table, and at step S153 the job is extracted. At step S154, the scanner 102 scans additional data and determines that the data is a job to be transmitted. At step S155, the scanner 102 ascertains that it is operating normally and that no*

problem exists in the scanning and transmission of instructed information." column 20, lines 46-52).

Farrell '426 and Trovinger '967 are combinable with Jeyachandran '176 because they are from same field of endeavor of printer systems (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 and Trovinger '967 by adding calling the user information stored in the second memory means based on the read job information and notifying the client of job completion based on the user information as taught by Jeyachandran '176.

The motivation for doing so would have been because it advantageous to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

Therefore, it would have been obvious to combine Farrell '426 and Trovinger '967 with Jeyachandran '176 to obtain the invention as specified in claim 7.

Regarding claim 12; Farrell '426 and Trovinger '967 discloses a printing system as claimed in claim 11, further comprising an on-line scanner, and wherein the print server further includes: a memory for storing job information and user information included in the received job ticket (*"Referring now to FIG. 2, the controller section 14 is illustrated by functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job."* column 3, lines 55-67 thru column 4, lines 1-7, See also Fig. 2); and wherein said processor reads job information input by the scanner from the job ticket printed by the on-line printer, retrieves the user information stored in said memory based on the job information input by the scanner (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine*

readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets." column 7, lines 45-55).

Farrell '426 and Trovinger '967 does not expressly disclose notifying the client of job completion based on the user information.

Jeyachandran '176 discloses notifying the client of job completion based on the user information (*"Since, at step S157, the printer 104 can not execute the job, program control moves to step S160. Then, as at step S160 it is determined that the job for the output of information can be performed by the printer 103, at step S161 it is determined that the received information should be transmitted to the printer 103. At step S162 the printer 104 sends an instruction to the printer 103 to print the information that is to be received (route 3). At step S163 to notify the user that the instructed job was performed by the printer 103 electronic mail for the user is transmitted to the PC 101 (route 4)."* column 21, lines 7-15; See also (*"First, the process performed by the scanner 102 will be explained. At step S150 the scanner 102 scans a document and acquires a job, information concerning which is to be transmitted to the printer 104. At step S151 this job is entered in the job table, and at step S153 the job is extracted. At step S154, the scanner 102 scans additional data and determines that the data is a job to be transmitted. At step S155, the scanner 102 ascertains that it is operating normally and that no problem exists in the scanning and transmission of instructed information."* column 20, lines 46-52).

Farrell '426 and Trovinger '967 are combinable with Jeyachandran '176 because they are from same field of endeavor of printer systems (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 and Trovinger '967 by adding notifying the client of job completion based on the user information as taught by Jeyachandran '176.

The motivation for doing so would have been because it advantageous to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

Therefore, it would have been obvious to combine Farrell '426 and Trovinger '967 with Jeyachandran '176 to obtain the invention as specified in claim 10.

Regarding claim 15; Farrell '426 and Trovinger '967 discloses a print server as claimed in claim 14, wherein the printing system further includes an on-line scanner, and the print server further comprises: a memory for storing job information and user information included in the received job ticket (*"Referring now to FIG. 2, the controller section 14 is illustrated by*

functional interconnected blocks including an image input control computer 22 for receiving an electronic representation of an image from the image input source 12. A system controller 24 extracts the desired finishing instructions for the particular print job from user interface 26. Typically, users enter preferences such as output media type, orientation, numbers of copies, collation variables, image output quality, and finishing instructions such as binding options, hole drilling, excess margin trimming, and the like. Alternately, user preferences could accompany the job data itself from the image input source 12, for example networked personal computers may be instructed to supply both job data and user preferences. Artisans will appreciate that the controllers decoding the user preferences can be embedded within a single machine, for instance as in an integrated multifunction system; or they can be distributed over a network where, for instance, the input device is not physically packaged with the printer. Regardless of source however, the system controller 24 obtains the desired finishing instructions for the particular print job." column 3, lines 55-67 thru column 4, lines 1-7, See also Fig. 2); and wherein said processor reads job information input by the scanner from the job ticket printed by the on-line printer, retrieves the user information stored in said memory based on the job information input by the scanner (*"The edge sensors 151, 153, FIG. 9 can also be used to read bar code indicia that are printed on a job ticket that is passed through the booklet maker in front of or before the duplex printed sheets that will processed into the booklet. The job ticket provides job processing instructions in machine readable form to the booklet maker. These can include the number of sheets, the thickness of the sheets or individual sheets, the number and position of staples, the final finished size of the booklet, and other information. The job ticket can originate from any source including the printer that printed the sheets."* column 7, lines 45-55);

Farrell '426 and Trovinger '967 does not expressly disclose notifying the client of job completion based on the user information.

Jeyachandran '176 discloses notifying the client of job completion based on the user information (*"Since, at step S157, the printer 104 can not execute the job, program control moves to step S160. Then, as at step S160 it is determined that the job for the output of information can be performed by the printer 103, at step S161 it is determined that the received information should be transmitted to the printer 103. At step S162 the printer 104 sends an instruction to the printer 103 to print the information that is to be received (route 3). At step S163 to notify the user that the instructed job was performed by the printer 103 electronic mail for the user is transmitted to the PC 101 (route 4)."* column 21, lines 7-15; See also (*"First, the process performed by the scanner 102 will be explained. At step S150 the scanner 102 scans a document and acquires a job, information concerning which is to be transmitted to the printer 104. At step S151 this job is entered in the job table, and at step S153 the job is extracted. At step S154, the scanner 102 scans additional data and determines that the data is a job to be transmitted. At step S155, the scanner 102 ascertains that it is operating normally and that no problem exists in the scanning and transmission of instructed information."* column 20, lines 46-52).

Farrell '426 and Trovinger '967 are combinable with Jeyachandran '176 because they are from same field of endeavor of printer systems (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the printer system as taught by Farrell '426 and Trovinger '967 by adding notifying the client of job completion based on the user information as taught by Jeyachandran '176.

The motivation for doing so would have been because it advantageous to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required (*"It is another objective of the present invention to provide a printing apparatus that can perform printing by employing appropriate printing parameters consonant with the processing objective, without a complex operation being required, and a control method therefor."* Jeyachandran '176 at column 2, lines 38-42).

Therefore, it would have been obvious to combine Farrell '426 and Trovinger '967 with Jeyachandran '176 to obtain the invention as specified in claim 1.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCUS T. RILEY whose telephone number is (571)270-1581. The examiner can normally be reached on Monday - Friday, 7:30-5:00, est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler L. Haskins can be reached on 571-272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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